

was brought opposite a point connected with the positive conductor of the machine. The machine was then worked for a few turns, and alkali immediately appeared at the point of the discharging train which rested on the turmeric paper. Corresponding effects took place at the negative conductor of a machine.

197. These cases are abundantly sufficient to show that electro-chemical decomposition does not depend upon the simultaneous action of two metallic poles, since a single pole might be used, decomposition ensue, and one or other of the elements liberated, pass to the pole, according as it was positive or negative. In considering the course taken by, and the final arrangement of, the other element, I had little doubt that I should find it had receded towards the other extremity, and that the air itself had acted as a pole, an expectation which was fully confirmed in the following manner.

198. A piece of turmeric paper, not more than 0.4 of an inch

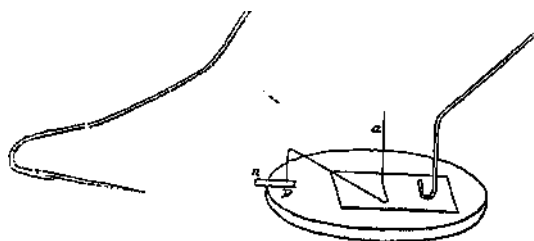


Fig. 8.

in length and 0.5 of an inch in width, was moistened with sulphate of soda and placed upon the edge of a glass plate opposite to, and about two inches from, a point connected with the discharging train (fig. 8); a piece of tinfoil, resting upon the same glass plate, was connected with the machine, and also with the turmeric paper, by a decomposing wire (48). The machine was then worked, the positive electricity

passing into the turmeric paper at the point *p*, and out at the extremity «.

After forty or fifty turns of the

machine,

the extremity *n* was examined, and the

two points or angles

found deeply

coloured by the presence of free alkali (fig. *So*).

199. A similar piece of litmus paper, dipped in solution of